

تالیف

آرمین لیزدی کلاس B

$$f(-x) - xf(x) = \underbrace{(|x|+1)}_{p|x|+1} \quad -1$$

$$x = -x \rightarrow f(x) + xf(-x) = \underbrace{(|-x|+1)}_{p|x|+1}$$

$$Z = p|x|+1$$

$$f(-x) - xf(x) = Z \rightarrow f(-x) = Z + xf(x)$$

$$f(x) + xf(-x) = Z$$

$$f(x) + x(Z + xf(x)) = Z \rightarrow (1+x^p)f(x) + xZ = Z$$

$$(1+x^p)f(x) = Z(1-x) \rightarrow f(x) = \frac{(p|x|+1)(1-x)}{x^p+1}$$

$$f(x) + f(0) = x^p - px + y \quad -p$$

$$f(0) + f(0) = y \rightarrow f(0) = \frac{y}{2}$$

$$f(x) + \frac{y}{2} = x^p - px + \frac{y}{2} \rightarrow f(x) = x^p - px + \frac{y}{2}$$

$$f(x^p) = (x^p)^p - px^p + \frac{y}{2} \rightarrow f(x^p) = x^{p^2} - px^p + \frac{y}{2}$$

Scanned with

$$y = \frac{x^p + x + 1}{x-1} \rightarrow yx - y = x^p + x + 1$$

$$\rightarrow x^p + (1-y)x + (y+1) = 0 \quad \Delta = (1-y)^2 - 4(y+1) \geq 0$$

$$\rightarrow y^2 - 4y - 4 \geq 0 \rightarrow (y-4)(y+1) \geq 0 \rightarrow R = (-\infty, -1] \cup [4, +\infty)$$

$$\text{الف) } y = \frac{px^p - ax + 1}{x-1} \xrightarrow{a > 0} \begin{cases} x_{\min} = \frac{a}{p} \\ y_{\min} = \frac{pa}{\lambda} - \frac{pa}{p} + 1 = -\frac{1}{\lambda} \end{cases}$$

$$\rightarrow R = \left[-\frac{1}{\lambda}, +\infty\right)$$

$$\text{ب) } y = \sqrt{-x^p + px - a} \xrightarrow{a < 0} \begin{cases} x_{\max} = \frac{-p}{-p} = 1 \\ y_{\max} = 1 \end{cases}$$

$$\rightarrow R = \sqrt{(-\infty, 1]} \rightarrow R = [0, 1] \rightarrow p$$

$$\text{ج) } y = \sqrt{x^p - px^p + px + 1} \rightarrow R = [0, +\infty)$$

$$\text{د) } y = \log(x^p - px^p + px + 1) \rightarrow x^p - px^p + px + 1 > 0$$

$$= (x-1)(x^p - px - 1) \Rightarrow \frac{1-\sqrt{p}}{-1} \quad \frac{1+\sqrt{p}}{+1} \quad \frac{p}{+}$$

$$\Rightarrow R = (-$$

$$\Delta) \log(x^p - yx^p + 1) \rightarrow R = (-\infty, +\infty)$$

$$\text{الف) } y = \frac{px+1}{px-y} \rightarrow R = \mathbb{R} - \left\{ \frac{p}{p} \right\} \quad -\text{a}$$

$$\text{ب) } y = \sqrt{\frac{fx+1}{x-p}} \rightarrow R = [0, +\infty) - \{1\}$$

$$\text{ج) } y = \frac{x^p + f}{\sqrt{x^p + p}} = \frac{x^p + p + 1}{\sqrt{x^p + p}} = \sqrt{x^p + p} + \frac{1}{\sqrt{x^p + p}}$$

$$\Rightarrow R = \left[\frac{f\sqrt{p}}{p}, +\infty \right)$$

$$\Delta) y = x^p + \frac{1}{x^p + f} \rightarrow R = \left[\frac{1}{f}, +\infty \right)$$

$$y = \frac{px^p + f}{x^p - 1} \rightarrow \begin{cases} +\infty = x \rightarrow y = p \\ 0 = x \rightarrow y = -f \end{cases} \quad -\text{y}$$

$$= R = (-\infty, -f] \cup (p, +\infty)$$

$$y = \frac{p \sin x + f}{\sin x - p} \rightarrow \begin{cases} \sin x = 1 \rightarrow y = -p \\ \sin x = -1 \rightarrow y = -\frac{1}{p} \end{cases} \quad -\text{V}$$

$$R = \left[-p, -\frac{1}{p} \right]$$

$$\text{الف) } y = \left| \frac{p_n - 1}{f_n} \right| \Rightarrow p_n - 1 = 0 \Rightarrow n = \frac{1}{p}$$

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$$\Rightarrow R = [0, +\infty)$$

$$\text{ب) } y = \sqrt{\frac{q_n - 1}{-1 + p_n}} \xrightarrow{n \neq 1} \sqrt{\frac{q(n-1)}{f(n-1)}} \rightarrow R = \left\{ \frac{p}{p} \right\}$$

$$y = n|n| - p_n \rightarrow y = \begin{cases} n^p - p_n & n \geq 0 \\ -n^p - p_n & n \leq 0 \end{cases}$$

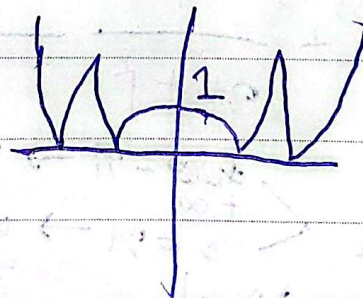
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$$n^p - p_n \xrightarrow{a > 0} \begin{cases} n_{\min} = 1 \\ y_{\min} = -1 \end{cases} \rightarrow [-1, +\infty)$$

$$-n^p - p_n \xrightarrow{a < 0} \begin{cases} n_{\min} = -1 \\ y_{\min} = 1 \end{cases} \rightarrow (-\infty, 1]$$

$$\Rightarrow R = (-\infty, +\infty)$$

$$|f(|n|) + 1| \rightarrow$$



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